

Bellwork: 3/22/13

Simplify the following rational expression:

$$\frac{3x^2+11x+10}{x^2+8x+12} \div \frac{9x^2-25}{x^2+x-30}$$

$$\frac{(3x+5)(x+2)}{(x+6)(x+2)} \cdot \frac{(x+6)(x-5)}{(3x-5)(3x+5)}$$

$$\boxed{\frac{x-5}{3x-5}}$$

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WORKSHEET 8.4 #2

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Divide and simplify each of the following expressions.

$$1) \frac{x^2-25}{2x} \div \frac{3x+15}{12x^2-24x} = \frac{(x+5)(x-5)}{2x} \cdot \frac{12x(x-2)}{3(x+5)}$$

$$6(x-5)(x-2) = 2(x-5)(x-2)$$

$$2) \frac{5x-15}{x^2-25} \div \frac{2x}{x^2+5x} = \frac{5(x-3)}{(x+5)(x-5)} \cdot \frac{x(x+5)}{2x} = \frac{5(x-3)}{2(x-5)}$$

$$3) \frac{x^2-7x+10}{x-1} \div \frac{3x^2-6x}{x^2-1} = \frac{(x-5)(x-2)}{x-1} \cdot \frac{(x+1)(x-1)}{3x(x-2)}$$

$$\frac{(x-5)(x+1)}{3x}$$

$$4) \frac{x^2-7x+6}{x+3} \div \frac{x^2-5x-6}{x+3} =$$

$$5) \frac{x^2-2x-8}{4x^2+8x} \div \frac{x^2+x-20}{1} = \frac{(x+2)(x-4)}{4x(x+2)} \cdot \frac{1}{(x+5)(x-4)}$$

$$\frac{1}{4x(x+5)}$$

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6) $\frac{9x^2 - y^2}{2x} \div \frac{3x^2y + xy^2}{4x^2y^2} = \frac{(3x+y)(3x-y)}{2x} \cdot \frac{4x^2y^2}{xy(3x+y)} = \frac{2y(3x-y)}{1}$

7) $\frac{(m-3)^2}{m^2 - 6m + 9} \div \frac{m^2 - 9m}{m^2 - 9} = \frac{(m-3)(m-3)}{(m-3)(m-3)} \cdot \frac{(m+3)(m-3)}{m(m+3)(m-3)} = \frac{1}{m}$

8) $\frac{\frac{x^2-4}{x+3}}{\frac{x^2-4x+4}{x^2+3x}} = \frac{(x+2)(x-2)}{x+3} \cdot \frac{x(x+3)}{(x-2)(x-2)} = \frac{x(x+3)}{(x-2)(x-2)}$

9) $\frac{2x^2+9x+9}{x+1} \div \frac{10x^2+19x+6}{5x^2+7x+2} = \frac{(2x+3)(x+3)}{x+1} \cdot \frac{(5x+2)(x+1)}{(5x+2)(2x+3)} = \frac{(2x+3)(x+3)}{(5x+2)(2x+3)} = \frac{(x+3)}{(5x+2)}$

10) $\frac{b^2-100}{b^3} \div \frac{3b^2-31b+10}{2b} = \frac{(b+10)(b-10)}{b^3} \cdot \frac{2b}{(3b-1)(b-10)} = \frac{2(b+10)}{b^2(3b-1)}$

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